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MONDAY, JANUARY 25, 1864.

The VERY REV. CHARLES GRAVES, D. D., President, in the Chair.

The Rev. J. H. Jellett read a paper "On the Refraction of Polarized Light."

The Secretary of the Academy read the following communication from F. J. Foot, Esq., on a Quern Stone found in the neighbourhood of Ballinasloe, and presented by him to the Academy:—

THIS Quern Stone now presented was found, about one hundred years ago, in a fort in the townland of Gorteencahill (parish of Clonmacnowen, Ordnance Sheet, Galway, <sup>87</sup>), about three miles south of Ballinasloe, and near the road leading from that town to Eyrecourt.

As well as I can ascertain, it was found lying on the surface, and was discovered in clearing away the low brushwood which encumbered the surface of a fort. This I think is probable, as it is well known the peasantry seldom dig the soil in a fort. It was not perfect when found, and since then it has undergone a good deal of ill usage. Two small crosses may be seen on the outer rim. Probably there was another on the part of the stone which has been broken off.

I recollect a few years ago seeing a quern stone near Liscannor, in the county of Clare, with three plain crosses on it, the surface of the stone having been cut away, so as to leave them in *alto relievo*. The place of the fourth cross was occupied by the hole for the turning handle. It was flat, and not convex, like the present one; indeed, I think, the great convexity of its upper side and corresponding concavity of the under side are perhaps the most striking features of this stone. It has evidently been much used, as may be seen by the worn and smooth appearance of the concave or grinding side, when compared with the rough surface of the convex.

The stone now before you is a piece of a highly micaceous schistose rock; and Mr. J. Beete Jukes, to whom I showed it, considers it identical with the metamorphic rock of Galway. In all probability, it was made from an erratic block of that rock. Boulders of the well-known porphyritic granite of Galway are abundant in the drift, S. and S.W. of Ballinasloe. The Quern, from its having been found in a fort, is supposed, as usual, by the peasantry, to be of Danish origin.

EDWARD BLYTH, F. Z. S., read the following paper:—

#### ON THE ANIMAL INHABITANTS OF ANCIENT IRELAND.

AFTER some preliminary and introductory observations, he proceeded to state that he had had the opportunity, only a few hours previous to this congress of learned and scientific gentlemen, of examining a number of skulls and other animal remains, of various degrees of antiquity, that had been recovered from the superficial deposits of Ireland. When time

permitted of it, he would treat of these matters in elaborate detail; but now he merely wished to announce a few facts which, he believed, would be of considerable interest to naturalists, whether in Ireland or elsewhere.

In the first place, he would call attention to the *Bos frontosus* of Nilsson, which, so far as he had yet seen, was the hitherto supposed *Bos primigenius* of Ireland. He exhibited specimens, together with a fine series of heads or skulls of the *Bos longifrons*, many of both species presenting the very conspicuously evident effect and result of the fatal blow which had been undeniably administered by man. He would not now enter deeply into the question of the degree of antiquity of these skulls; but he had recently been exploring at Uriconium, the city of the Wrekin (Wroxeter or Uroxeter), so long the home and head-quarters of the Roman Twentieth Legion, and there he had seen abundance of the remains of the *Bos longifrons*, specimens of which he had collected and brought with him to Dublin, which were altogether undistinguishable from the animal of which the more or less ancient remains are so common in Ireland. Those specimens he had presented to the University Museum of this city, together with some examples of Roman pottery from the same site, inclusive of the famous Samian ware. Fragmentary remains of *Bos frontosus* are also among the Uriconian specimens in the Shrewsbury Museum. Dr. Blyth even knew of and recognised the identity of *Bos longifrons* before it had been described by his friend Professor Owen; and he had long felt sure that there must have been a race or species intermediate to the large *Bos primigenius* and the comparatively tiny and diminutive *Bos longifrons*, which race or species had been described by Professor Nilsson, of Stockholm, as *Bos frontosus*. The speaker would rather designate it as *Bos taurus*. There were those three races of yore in pre-historic Europe, which, by interbreeding and commixture in every shape and way, have resulted in and produced the multitudinous breeds of the present day. There was another in the east of Europe, the *Bos trochocerus*; and another in the Nerbudda deposits of the peninsula of India, the *Bos namadicus* of his friends, Sir T. Proby Cautley and Dr. Falconer, which latter approximated very closely indeed to the European *Bos primigenius*. He had also seen, some quarter of a century ago, the frontal bones and horn-cores of a *Bos* noticed in an early volume of the "Proceedings of the London Geological Society," which had been gathered from the high banks of some stream that flows into the Orange or Gareip river in South Africa. Those horns were of the same particular division of the taurine type which was exemplified by *B. primigenius*, *B. frontosus*, *B. longifrons*, *B. trochocerus*, and by the Indian *B. namadicus*.

Dr. Blyth had a deal to say upon this subject, much more than he would now venture to indulge in, to weary, perchance, and to try the patience of the Academy. But he did not believe that all of the remains to which he had adverted were of equal or corresponding antiquity; but rather that those of *Bos frontosus* and *Bos longifrons* reached down to quite a modern period, as compared to the latest remains in Western

Europe of the *Bos primigenius*, and still more so as compared to the latest date of the *Megaceros hibernicus*. All of those races of humpless taurine cattle would interbreed and combine with the races of humped cattle (which latter he believed to be of African rather than of Asiatic origin), as also with the sub-bisontine Yak; and, doubtless, likewise with the three or four species of flat-horned taurine cattle of South-Eastern Asia; but certainly not with the Buffaloes, nor with the genuine Bisons—one of which is the so-called Buffalo of North America, from which the name of the great city of "Buffalo," upon the shores of Lake Erie, is derived. Before he concluded about Bos, he would offer yet a few remarks.

Far away in India, his attention had been attracted by a paper from a gentleman that he was now proud to call his friend—Dr. Wilde—and he had long wished to examine certain skulls which Dr. Wilde had treated of, and which he had now determined, to his complete satisfaction, to be those of *Bos frontosus*. There was a small particular, or character, which generally distinguished a wild herbivorous animal from a tame one, and this was a certain incrustation of brown tartar upon the teeth, which he did not find in the porcine relics at Uriconium, but which he thought at first he did find upon Irish specimens of *Bos frontosus*, even though the mark or blow of the wedge was through the forehead. That character was observable even in the more completely vegetarian *Quadrumanus*, as *Semnopithecus* and *Colobus*, and even in the Orang-utan. But after examining the Irish bovine remains more attentively, he had noticed a ferruginous deposit from the peat, which might easily be mistaken for the incrustation of brown tartar that he had spoken of. In the one case there would be traces of parasitic life under the microscope—not so in the other case; and the absence of that particular kind of tartar upon the teeth indicated a tame animal rather than a wild one. The incrustation from the peat covered the whole tooth, at least as much of it as was out of the bony alveolus; whereas the tartar incrustation was only upon that portion of the tooth that had not been imbedded in the gum. The latter was conspicuously present in sundry teeth of *Megaceros hibernicus* and of *Cervus elaphus*. By the way, he would remark that the state or condition of preservation of the osseous remains of animals at Uriconium was something wonderful for bones that had been in the ground for two thousand years. But, whereas the mould of an ordinary grave-yard was somewhat acidulous, that of Uriconium was alkaline; and so the phosphates and carbonates of lime had not been dissolved away, and even much of gelatine remained in them. The bones usually resembled those found about a recent *abattoir* or slaughter house. Dr. Blyth had just examined a very considerable number of skulls of the *Bos longifrons*; and he was struck with the vast preponderance of females among them, even as, *mutatis mutandis*, the female skull of *Megaceros* was supposed to be comparatively rare. Nothing was more easy of explanation in either case. In the instance of the *Megaceros* the skulls of hinds had been found over and over again, and had been tossed aside as horses' skulls; perhaps, not having the grand horns to attract

attention. So likewise with the *Bos frontosus*. Its remains had been found in various parts of Europe, *ex necessitate rei*, and had been supposed to be those of a modern ox, and therefore neglected altogether, even as fossil human bones had doubtless, often and often, been similarly neglected. But in *Bos longifrons*, and probably in *Bos frontosus*, we find a preponderance of females. Why is this? Because the remains in bogs represented the herd as it existed—one bull at the head of a train of cows, as in wild or semi-wild bovine animals which exist at the present day; and because the bulls fight amongst each other and slay each other, and the animals which thus perish on the surface of the ground resolve and dissipate into their constituent proximate elements, instead of being imbedded and preserved in the peat of a morass.

Dr. Blyth next called the attention of the meeting to a series of skulls and fragments of skulls, which he considered to illustrate two races of domestic sheep, not very ancient, in his opinion, as compared with the remains of *Bos primigenius* (*verus*), or of *Megaceros Hibernicus*, in Western Europe. One series was of the polycerate race, still existent in Iceland, into which northern island it had probably been introduced from Ireland many centuries ago, although now utterly extinct (so far as he could learn) in Ireland. The other race would seem to be not very different, if at all so, from the old Scottish Highland race of sheep with which we are sufficiently familiar. He believed that either of those races might claim about the same antiquity with specimens of the *Bos frontosus* and of the *Bos longifrons*, but not of the *Bos primigenius*; that of *Sus* and of *Equus*, also, in Ireland; being much older than the oldest *Capra* that he had yet seen the remains of in this island. He drew the attention of the assembly to the most ancient-looking Irish *Capra* skull that had been brought to his notice; but this, he could perceive at a glance, was comparatively quite modern, and was that of the tame Welsh goat of the present day.\* Its horn-cores had the ibicine arched curvature backwards, analogous to that of the wild *Capra agagrus* and of other species, not the twist or spire of the *C. megaceros* of Kashmir, a link to which, from the other ibicine goats, was supplied by the *Capra pyrenaica* of Schinz, a fine stuffed specimen of which is in the Museum of the Royal Dublin Society, and another in the British Museum; and the species is most interesting as explaining the immediate affinities of the *C. megaceros*. The different animal remains from the Irish bogs had been found at various depths beneath the surface, and had been indiscriminately collected and promiscuously tumbled into the same heap by the finders of them; but they had not been contemporaneously deposited.

Dr. Blyth lastly exhibited to the meeting a very extraordinary frontlet and pair of horns, which, as he more than suspected, were not ancient Irish at all, but were obviously quite recent, and probably Ti-

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\* The specimen is figured in vol. vii., p. 206, f. 8; the Polycerate sheep in fs. 9 and 11; and the other race of sheep in fs. 7 and 10.

betan; but which were considerably interesting in a physiological point of view, whatever their age or local origin. They were, in fact, closely approximative to those of the unicorn breed of sheep of Tibet, which had been described by his friend, Mr. Robert Schlagintweit, only that after they had become tolerably united for a while the horns gyrated outward, and were far divergent at the tips. Those of the so-called unicorn breed of Tibet were developed as usual, each from the centre of ossification of the frontal bone, and, of course, not from the median frontal suture. They were, therefore, separate in the lamb, but grew towards each other until each bony horn-core became enveloped in and surrounded with the same corneous or cuticular integument, like two fingers of the hand inserted into one finger of a glove, the transverse section being that of a dicotyledonous seed—in other words, like that of the two lobes of a bean.

W. Lane Joynt, Esq. (with the permission of the Academy), exhibited an ancient Bell, called "The Bell of Burren."

The Secretary, on the part of W. Eassie, Esq., of High Orchard House, Gloucester, presented a large collection of Chinese drawings.

The thanks of the Academy were voted to the donor.

MONDAY, FEBRUARY 8, 1864.

The VERY REV. CHARLES GRAVES, D. D., President, in the Chair.

James W. Warren, Esq., was elected a member of the Academy.

The Rev. Professor Jellett read a paper (in continuation) "On the Refraction of Polarized Light."

J. R. Garstin, LL. B., exhibited, and described, an ancient steel-yard, found on the property of the Rev. G. N. Tredennick, Co. Donegal. The steel-yard, which is evidently of considerable antiquity, was lately found on the property of the Rev. G. N. Tredennick, near Ballyshannon, by a tenant, when clearing away a mound of earth and stones, at a few feet from the surface. The mound appeared to have been a part of what was considered a Danish fort, or rath, of which there are several in the immediate vicinity. When found, the yard or stem was attached to the round bulb or weight; but was broken off by the person who found it, who imagined it was gold from the weight of it, and colour, resembling gilding. The covering of the lead was cut away by him, to ascertain whether the interior was gold. The stem is graduated on either side, evidently for ascertaining the weight of the article, and, from the appearance and manner in which it was ornamented, must have been a standard weight. A number of bronze celts, or ancient Irish implements, and bronze hatchets, also a sword of bronze, have been found in the immediate vicinity where the steel-yard was got.